(19) **Europäisches Patentamt**

European Patent Office

Office européen des brevets

(11) **EP 1 049 096 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.11.2000 Bulletin 2000/44

(51) Int. Cl.⁷: **G11B 27/00**, **G11B 27/10**,
G11B 19/02, H04N 9/804
// H04N5/85

(21) Application number: 00107513.4

(22) Date of filing: 07.04.2000

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: 29.04.1999 US 131815 P
30.06.1999 US 343765

(71) Applicant:
Thomson Licensing S.A.
92648 Boulogne Cedex (FR)

(72) Inventors:
• Lampe, Mark J.
Carmel IN 46032 (US)
• Rich, Michael D.
Fishers, IN 46038 (US)

(74) Representative:
Rossmanith, Manfred, Dr. et al
Deutsche Thomson-Brandt GmbH,
European Patent Operations,
Karl-Wiechert-Allee 74
30625 Hannover (DE)

(54) **Method and apparatus for controlling presentation of digital video data**

(57) A method and an apparatus for replaying a pre-determined portion of a program immediately preceding a current presentation time. An onscreen display is automatically activated while replaying the predetermined portion of the program to enable the viewer to better perceive dialogue that may have been missed or is difficult to understand due to background noise. In particular, the present invention comprises a transducer for retrieving digital video data units and control data units from a source of video data and providing digitally encoded data, a decoder coupled to the transducer for decoding a display from the digitally encoded data, and a controller for presenting a program based on a sequence of video data units in response to a first user input and replaying a predetermined portion of the program preceding a current presentation time in response to a second user input, the controller providing an onscreen display while replaying the predetermined portion of the program preceding the current presentation time. The present invention is particularly suitable for processing data encoded in accordance with the DVD specification.

FIG. 4

EP 1 049 096 A2

Description

[0001]   This application claims the benefit of U.S. Provisional Application 60/131,815, filed April 29, 1999.

BACKGROUND OF THE INVENTION

1. Field of the Invention.

[0002]   The present invention relates to a method and an apparatus for controlling presentation of a video program based on a digital data stream, and in particular, a method and an apparatus for allowing a user to easily replay a predetermined portion of the program preceding a current presentation point and call up program related on screen displays during the replay interval.

2. Related Art.

[0003]   Video signal processing systems that utilize storage media having digitally compressed video and audio information recorded thereon can give the user a vast number of options for controlling presentation of a program, or a video title, stored on such a media. One such system that is gaining rapid popularity comprises a video disc player adapted to process information stored in accordance with the digital video disc (DVD) specification. The information on a DVD formatted disc is recorded as discrete packets of data, in accordance with a video and audio data compression standard, wherein designated packets carry data associated with various data streams, such as alternative video angles, audio tracks, sub-picture streams, etc. A video disc player reading a DVD formatted disc may be controlled to display or present certain packets of data and skip over others. Using this capability, the DVD system can allow the disc author to provide multiple variations of a video title, as well as various on screen displays, to suit the preferences of the viewer.

[0004]   Often, viewers want to replay a predetermined portion of a program during the course of a particular viewing. This may occur when the viewer wants to replay a brief portion of the program that the viewer may have missed, or particularly enjoyed, during regular playback. Also, if a particular scene includes loud music and sound effects that tend to drown out dialogue, viewers may wish to playback only that scene to try to rehear to the portions of the dialogue that they missed.

[0005]   The viewer usually has a number of options to replay a portion of the program during normal playback. The viewer may jump back to the beginning of a predefined program block, such as a chapter on a DVD. The viewer may playback the program at a faster speed, either in forward or reverse mode, until the desired point in the program is found, and then resume playback at normal speed. The viewer may set a repeat mode to repeat the playback of a predefined program block or a viewer defined program block by setting A-B points on the disc.

[0006]   However, these methods usually require multiple keypresses and are inconvenient when the viewer wishes to replay only a short interval of the program that immediately precedes the current presentation point. If the viewer wants to better perceive the missed conversation, the viewer may manually switch ON the subtitles, while searching for the desired jump point, and switch OFF the subtitles after the replay is completed. However, this adds more keypresses to the sequence, and the viewer must manually coordinate the switching ON and OFF of the subtitles with the search and presentation, which may be difficult and annoying. Thus, the multiple keypresses and inconveniences tend to interrupt the flow of the program and reduce the viewer's enjoyment of the program.

[0007]   Therefore, what is needed is a method and an apparatus for allowing a viewer to easily replay a predetermined portion of a program that immediately precedes the current presentation point.

[0008]   What is also needed is a method and an apparatus for allowing a viewer to easily replay a predetermined portion of a program that immediately precedes the current presentation point in a manner which allows the viewer to view selected on screen displays (OSDs) associated with the replay interval.

[0009]   What is also needed is a method and an apparatus for allowing a viewer to easily replay a predetermined portion of a program that immediately precedes the current presentation point wherein the program data is formatted in accordance with the DVD specification.

SUMMARY OF THE INVENTION

[0010]   The present invention allows a viewer to easily replay a predetermined portion of the program preceding a current presentation point in response to a user input. The present invention also provides onscreen displays, such as subtitles, in accordance with viewer selected preferences, during the replay interval.

[0011]   In an exemplary embodiment suitable for use with data formatted in accordance with the DVD specification, the present invention comprises the steps of: presenting a program based on a selected sequence of presentation data units; detecting a user entered replay request; determining a replay start time in response to the user entered replay request; retrieving presentation data units associated with the replay start time and restarting presentation of the program from the replay start time; and providing a program related on screen display when restarting presentation of the program from the replay start time. Advantageously, the onscreen display includes subtitles.

[0012]   Also, the present invention is a video processing apparatus comprising: a transducer for retrieving program data comprising digital presentation

data units and control data units from a source of program data, each digital presentation data unit being associated with respective control data unit, each presentation data unit corresponding to a predetermined program segment, the transducer retrieving a sequence of presentation and control data units in response to user entered data and providing digitally encoded data; a decoder coupled to the transducer for decoding a display from the digitally encoded data; and a controller coupled to the decoder and transducer, the controller presenting a program based on a sequence of presentation data units in response to a first viewer input, the controller replaying a predetermined portion of the program immediately preceding a current presentation point and providing a program related on screen display while replaying the predetermined portion of the program immediately preceding the current presentation point in response to a second user input.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013]   The invention will be described with reference to the accompanying drawings, wherein:

Fig. 1 is a block diagram of a digital video disc player suitable for implementing the replay feature of the present invention;
Fig. 2 is a diagram of a data structure in accordance with the DVD format and suitable for implementing the replay feature of the present invention;
Fig. 3 is a block diagram of a presentation structure in accordance with the DVD format and suitable for implementing the replay feature of the present invention; and
Fig. 4 is a flowchart illustrating the steps for implementing the replay feature of the present invention.

DETAILED DESCRIPTION

[0014]   Although the exemplary embodiment is described with reference to a digital video apparatus adapted to read compressed program data comprising video, audio and control data from a disc and to process the program data in accordance with the DVD specification, it is to be understood that the present invention may be used in any video processing apparatus capable of processing digital video and audio information, wherein program related information included with the video and audio information can be used to selectively present portions of the video and audio information, and each program data unit has associated with it presentation time data.

[0015]   Fig. 1 is a block diagram showing the basic elements of exemplary digital video disc player 24 suitable for controlling the presentation of digital program data in accordance with the present invention. The construction and operation of these elements are generally known and will not be discussed in detail here. Disc player 24 comprises motor and pickup assembly 26 that spins a disc and reads the information stored thereon under the control of servo processor 29. Preamp 27 and DVD data processing unit 28 translate the electrical pulses from motor and pickup assembly 26 into digital data that can be further processed by digital audio/video decoder unit 30. DVD data processing unit 28 typically performs functions such as demodulation, error correction and descrambling of the raw data read from the disc to provide digitally encoded data in a suitable format for decoder unit 30.

[0016]   Decoder unit 30 receives the digitally encoded data, processes the data, and provides the appropriate video and audio signals to a display unit, such as a television set. Decoder unit 30 comprises data stream de-multiplexer 32 which demultiplexes the data from data processing unit 28 into a plurality of separate data streams, including, for example, a video stream, an audio stream and a sub-picture stream, and provides the data streams to their respective data decoders. Video decoder 31 receives the video stream, decodes the signal in accordance with the MPEG-2 standard and provides a video signal to mixer 33. Sub-picture decoder 34 receives the sub-picture stream and provides data to on screen display (OSD) control 35 which provides OSD video signals to mixer 33. The combined video signal from mixer 33 is provided to NTSC/PAL encoder 42 which provides a video signal that conforms to the appropriate video signal standard to a video display device. Audio decoder 36 receives the audio streams from data stream demultiplexer 32 and provide the appropriate audio signals to an audio system.

[0017]   Microcontroller 40 controls the operation of disc player 24. Microcontroller 40 is coupled to user control device 41, which may comprise IR remote control devices, front panel buttons or the like. Microcontroller 40 translates data from user control device 41 to control the operation of the various elements of disc player 24 described above. Various parameters and data for presenting the data stream may be stored in memory 38. Microcontroller 40 may be embodied in various forms, including, but not limited to, a dedicated integrated circuit, or a part of a decoder/controller unit. Microcontroller 40 may be comprised of one of a plurality of suitable controller units, including, but not limited to STI 5500, manufactured by SGS Thomson.

[0018]   Fig. 2 illustrates the structure of the program data and control data stored on a disc in accordance with the DVD specification and suitable for presentation by disc player 24. The data structure is hierarchical, wherein each data block is divided up into component data blocks, which are further divided into smaller component data blocks. Each video title set, which corresponds to a designated program unit, for example, a movie or an episode of a television show, is comprised of video object sets, which comprises a plurality of video objects.

[0019] Each video object is comprised of a plurality of cells, each of which may be considered a presentation data unit having a plurality of program data types, such as video, audio, subpicture, etc., and corresponding to a program segment. Each cell is in turn comprised of a plurality of video object units (VOBUs). Each VOBU is comprised of a navigation pack (NAV_PACK) and a plurality of packs, which are subdivided into a plurality of packets. A VOBU generally corresponds to an MPEG-2 Group of Pictures (GOP), and the NAV_PACK includes the control data associated with the VOBU. Each NAV_PACK contains information such as sector addresses of VOBUs relative to the current one (both forwards and backwards in temporal presentation order), and the amount of elapsed time in cell presentation which corresponds to the current VOBU.

[0020] Data stored in accordance wit the DVD specification is also logically organized into a presentation structure in order to provide flexibility in the manner in which the data can be presented. Fig. 3 illustrates the presentation structure in accordance with the DVD specification and suitable for use with disc player 24. This presentation structure is overlaid onto the data structure of Fig. 2. At the base level, the presentation sequence is defined by programs (PGs) 96, each of which comprise a linked list of pointers to cells. A plurality of PGs 96 may be combined to form a program chain information (PGCI) 94, a plurality of which may in awn be combined to form program chain (PGC) 92.

[0021] During presentation, disc player 24 retrieves the appropriate cells from the disc in accordance with a PGC, demultiplexes the data in the cells and prepares the data for presentation. In this connection, the NAV_PACKs are parsed and addresses of the NAV_PACK may be saved for use at a later time. Since each NAV_PACK has associated with it an elapsed time value, a NAV_PACK can be used to resume presentation at a specific elapsed time after stopping, or it can be used for time-edit features. In the present invention, microcontroller 40 converts the relative elapsed time data in each NAV_PACK to an absolute elapsed time value and stores the NAV_PACK address in memory 38, or any other appropriate memory device. Thereafter, a particular NAV_PACK address associated with a particular elapsed time value may be easily and quickly accessed when the user requests a replay.

[0022] In accordance with the present invention, when the user requests a replay, microcontroller 40 evaluates the current presentation time, determines the desired replay start time, determines the desired NAV_PACK address associated with the desired replay start time based on the elapsed time data stored in memory 38, and resumes presentation from the desired replay start time based on the desired NAV_PACK. The address of the NAV_PACK, as stored, is used as a place to resume playback from. It may be thought of as the start sector to begin demultiplexing content and presenting the content. The end sector is still the final sec-

tor in the cell. Thus, presentation is resumed at a prior point, with the delimiters of presentation being the NAV_PACK address of interest, and the end address of the cell which contains that VOBU.

[0023] According to the DVD format, a NAV_PACK is parsed about every .4 - .6 seconds of presentation material. This means that the effective sampling rate is sufficient to allow jump-backs on a 1 second presentation time boundary. Using the saved NAV_PACK addresses, disc player 24 may jump back a predetermine time period preceding the current presentation time. The NAV_PACK addresses are indexed by their elapsed time information so that when a user wishes to jump backward a predetermined number of seconds, it is easy to retrieve the desired NAV_PACK.

[0024] Advantageously, the NAV_PACK addresses may be stored in a circular memory in order to facilitate selection of the desired NAV_PACK and reduce memory requirements. The circular memory may be formed as part of microcontroller 40 or memory 38, for example. Also, NAV_PACK addresses may be stored to be retrievable at predetermined intervals, thereby allowing the user to jump back in multiples of a predetermined time interval. For example, a single press of a replay button may be arranged to cause disc player 24 to replay the previous 5 seconds, while two presses of the replay button causes disc player 24 to replay the previous 10 seconds, etc. Alternatively, the replay interval associated with each button press may be arranged to be user selectable. The replay request and the selection of replay interval may be input by the user using any one of the user interface methods known, for example, by using a remote control device and/or an onscreen display.

[0025] Since storing all of the NAV_PACK addresses for an entire title may be very memory intensive, the NAV_PACK addresses for only a predetermined amount of time in the past are saved in memory 38. If the user wishes to jump back for a time period that exceeds the time period saved, a time-search algorithm may be used to determine the desired presentation time, and the NAV_PACK addresses associated with the desired presentation time. Such an algorithm may employ the TIME MAP table that is included in a disc for any title which is of type One_Sequential_PGC. The time map table includes sector addresses for NAV_PACKs that begin at distinct time intervals. The time granularity of these intervals may vary (and may be more than 1 second resolution). Thus, the algorithm may jump to the NAV_PACK that starts closest to the time being searched, and then search forward in the stream until the NAV_PACK that has the presentation material starting at the exact second being searched is found.

[0026] Once the desired presentation time has been determined and the NAV_PACK associated with the desired presentation time has been accessed, program presentation resumes. As noted above, viewers

may wish to replay a portion of the program to rehear dialogue that they may have missed. In this regard, microcontroller 40 automatically turns ON the subtitles, in accordance with user set language preference, when presentation resumes at the desired presentation time. Alternatively, the selected subtitle may correspond to the last used subtitle language or a default language, or the subtitles may be turned OFF altogether according to the user set preference. When presentation reaches the presentation time corresponding to the time the replay request was received, microcontroller 40 automatically turns off the subtitle. By viewing the subtitle display, the viewer is able to easily perceive any dialogue that may be difficult to follow or hear due to background noise. In this manner, disc player 24 replays a predetermined portion of the program and provides subtitles during the replay interval, in response to a single user input, thereby relieving the user of the inconveniences noted above.

[0027]   Fig. 4 illustrates a flowchart for implementing the instant replay feature in accordance with the present invention. Under normal presentation conditions, disc player 24 retrieves the program data from a disc and presents a selected title in accordance with a prescribed sequence as indicated in step 102. As noted above, disc player 24 parses the NAV_PACKs during presentation and for every NAV_PACK encountered in the stream, converts the NAV_PACK relative elapsed time value into an absolute elapsed time value and stores the NAV_PACK address in a circular buffer, overwriting the oldest kept value.

[0028]   In step 104, disc player 24 determines whether a viewer input requesting instant replay has been received. If not, disc player 24 continues normal presentation as indicated in step 102. If an instant replay request is received, disc player 24 evaluates the current elapsed presentation time, and stores that current elapsed presentation time, in step 106 and subtracts the desired number of seconds from the current elapsed presentation time in step 108 to determine the desired presentation time. If a NAV_PACK address for the desired presentation time is stored in memory 38, as determined in step 110, disc player 24 accesses that NAV_PACK and resumes presentation beginning from that NAV_PACK. If the desired NAV_PACK address has not been stored, thereby indicating that the user wishes to jump back a relatively large period of time, a time-search algorithm is used to determine the desired presentation time and NAV_PACK address, as indicated by step 112.

[0029]   Once the desired NAV_PACK address is found, presentation resumes based on the desired NAV_PACK, as indicated in step 114, and subtitles are automatically turned ON, as indicated in step 116. The subtitles may be turned ON in accordance with user set preferences or may be turned ON in accordance with the last subtitles used. Presentation with subtitle continues until presentation reaches the original presentation

time when the instant replay request was detected at step 104. At that point, the subtitles are turned OFF, as indicated in step 118, and presentation continues in the normal manner, as indicated in step 102.

[0030]   It will be apparent to those skilled in the art that although the present invention has been described in terms of an exemplary embodiment, modifications and changes may be made to the disclosed embodiment without departing from the essence of the invention. For example, although the present embodiment displays subtitles during the replay, it is clear that the onscreen display may include other program related information which may be authored or included on the disc, or source of data, and selected by the viewer for display. Such displays include, but are not limited to, textual information related to director's comments, cast member comments, instructional commentary, etc. Also, any conventionally known methods suitable for storing and accessing data addresses in view of their associated presentation time data may be used. Also, memory 38 may be formed as part of microcontroller 40 rather than as a separate device.

[0031]   It is herein recognized that the present instant replay feature may be implemented using any one of a number of conventionally known methods, or combination of methods, for controlling the various elements of disc player 24 described above, for example by using embedded software in a microcontroller 40. Also, the present instant replay feature may be implemented for any signal processing system which can be configured to selectively display programs while providing means to store the current elapsed presentation time and addresses of previously presented program portions. Therefore, it is to be understood that the present invention is intended to cover all modifications as would fall within the true scope and spirit of the present invention.

Claims

1. In a system adapted to retrieve and present a sequence of digital presentation data units, a method for controlling presentation of the presentation data units, comprising the steps of:

    retrieving program data including a plurality of digital presentation data units and control data units, each presentation data unit corresponding to a predetermined program segment and having time information associated therewith; presenting (102) the retrieved data units in selected sequence in response to a user entered play request, characterized by detecting (104) a user entered replay request; determining (108) a replay start time and restarting (114) presentation of the presentation data units from the replay start time in response to the user entered replay request;

and

 providing (116) a program related onscreen display when restarting presentation of the presentation data units from the replay start time.

2. The method according to claim 1, characterized in that the onscreen display comprises subtitles.

3. The method according to claim 1, characterized in that the providing step comprises providing (116, 118) a program related on screen display during the presentation interval from the replay start time to a presentation time corresponding to a time the user entered replay request was detected.

4. The method according to claim 1, characterized in that the presenting step comprises parsing (106) control data units associated with the presentation data units and storing address data associated with the control data units in a circular buffer.

5. The method according to claim 4, characterized in that the control data units comprise NAV_PACKs in accordance with the DVD specification, and the presenting step comprises parsing (106) the NAV_PACKs, converting each NAV_PACK relative elapsed time into an absolute elapsed time value and storing each NAV_PACK address in a memory device.

6. The method according to claim 5, characterized in that the restarting step comprises retrieving (110) a desired NAV_PACK address from the memory, retrieving a presentation data unit associated with the desired NAV_PACK and resuming (114) presentation of the program from the retrieved presentation data unit.

7. The method according to claim 6, characterized in that the determining step comprises determining (110, 114) the current presentation time and subtracting a desired amount of time from the current presentation time to determine the replay start time, and retrieving a control data unit associated with the replay start time.

8. The method according to claim 6, characterized in that the determining step comprises using (112) a time search algorithm to determine the replay start time.

9. A digital video system, comprising:

 a transducer (26) for retrieving program data comprising digital presentation data units (VOBU) and control data units (NAV_PACK) from a source of program data, each digital presentation data unit being associated with respective control data unit, each presentation data unit corresponding to a predetermined program segment (cell), the transducer retrieving a sequence of presentation and control data units in response to user entered data and providing digitally encoded data;

 a decoder (28, 30) coupled to the transducer for decoding a display from the digitally encoded data; and
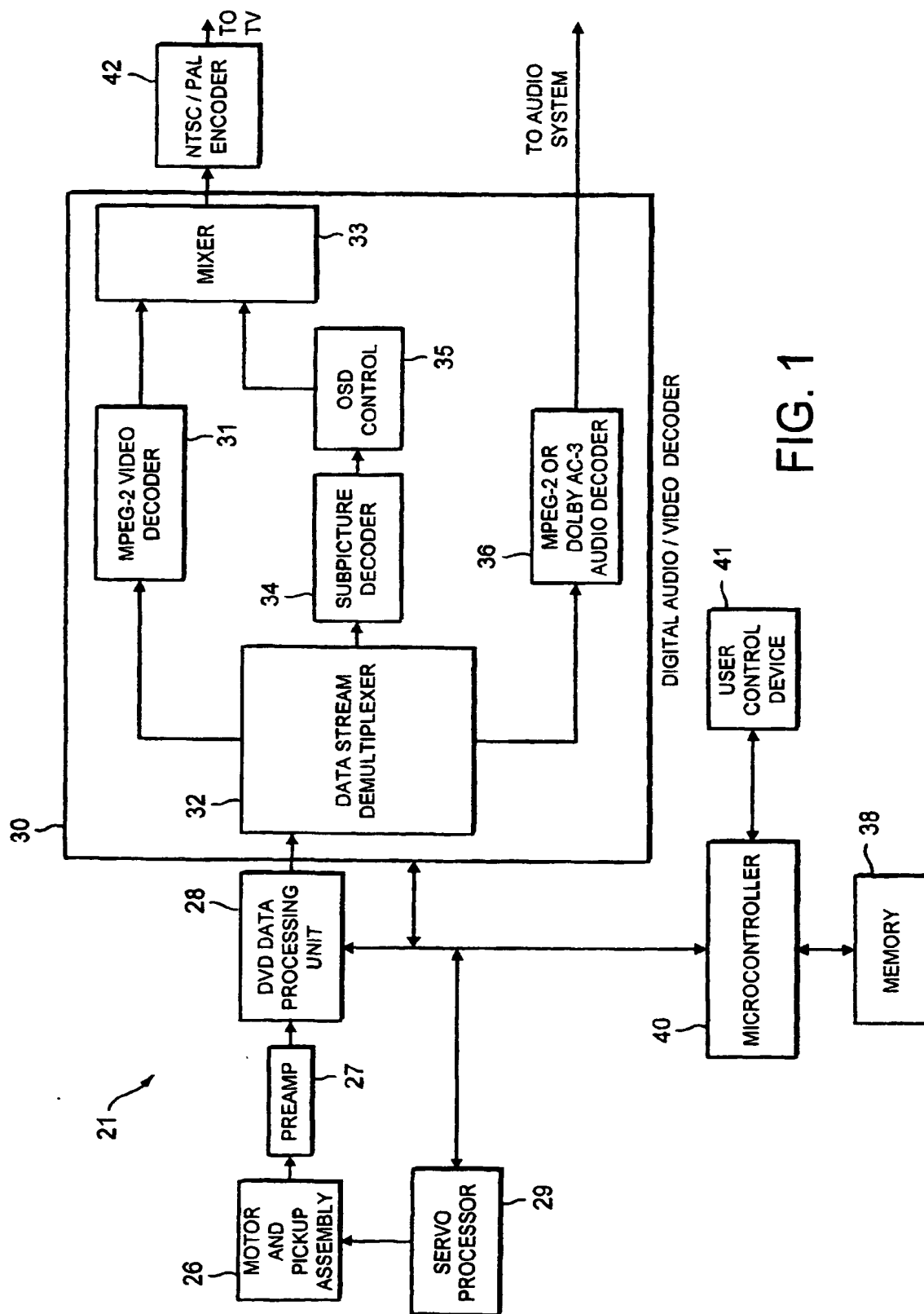
 a controller (40) coupled to the decoder (28, 30) and transducer (26), the controller presenting a sequence of presentation data units in response to a first viewer input, characterized in that the controller replays (114) a predetermined portion of the program immediately preceding a current presentation point and provides (116, 118) a program related on screen display while replaying the predetermined portion of the program immediately preceding the current presentation point in response to a second user input.

10. The system according to claim 9, characterized in that the on screen display comprises subtitles.

11. The system according to claim 9, characterized in that the controller parses (106) the presentation data units and the control data units during presentation, and stores address data associated with the control data units in a circular buffer.

12. The system according to claim 9, characterized in that the control data units comprise NAV_PACKs in accordance with the DVD specification, and the controller parses (106) the NAV_PACKs during the presentation, converts each NAV_PACK relative elapsed time into an absolute elapsed time value and stores each NAV_PACK address in a memory device.

13. The system according to claim 12, characterized in that the controller retrieves (110) a desired NAV_PACK address from the memory device, controls the transducer to retrieve a presentation data unit associated with the desired NAV_PACK and restarts (114) presentation based on the retrieved presentation data unit in response to the second viewer input.

14. The system according to claim 13, characterized in that the controller, in response to the second viewer input, determines the desired NAV_PACK address by determining (108) a current presentation time and subtracting a predetermined time from the current presentation time and retrieves a presentation data unit associated with the desired NAV_PACK.

15. A method of presenting a sequence of digitally encoded video data units and control data units, comprising the steps of:

retrieving and presenting (102) a sequence of video data units in response to a first viewer input; and

replaying (114) a predetermined portion of the sequence of video data units preceding a current presentation time in response to a second viewer input characterized by

providing (116, 118) a program related onscreen display while replaying the predetermined portion of the sequence of video data units in response to the second viewer input.

16. The method according to claim 15, characterized in that the providing step (116) comprises providing subtitles in accordance with viewer selected preferences.

17. The method according to claim 15, characterized in that the retrieving and presenting step comprises retrieving (106) control data units associated with the video data units, and storing address data associated with each of the control data units in a circular buffer.

18. The method according to claim 15, characterized in that the replaying step comprises replaying a multiple of a predetermined interval of the sequence of video data units.

19. The method according to claim 15, characterized in that the replaying step comprises determining (108) a replay start time by determining a current presentation time and subtracting a predetermined time period from the current presentation time, and retrieving a control data unit associated with the replay start time.

20. The method according to claim 15, characterized in that the replaying step comprises determining (112) a replay start time using a time search algorithm.
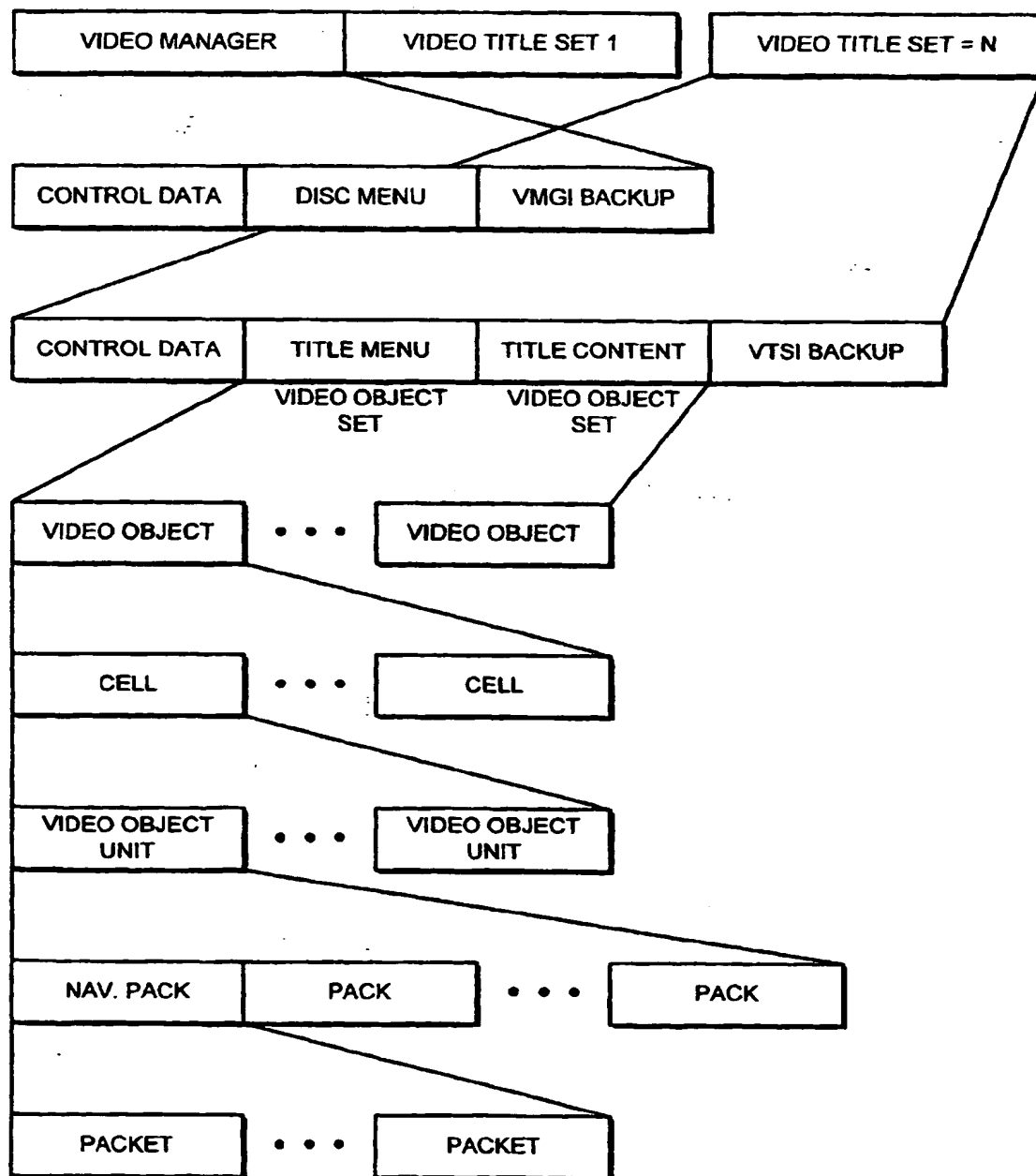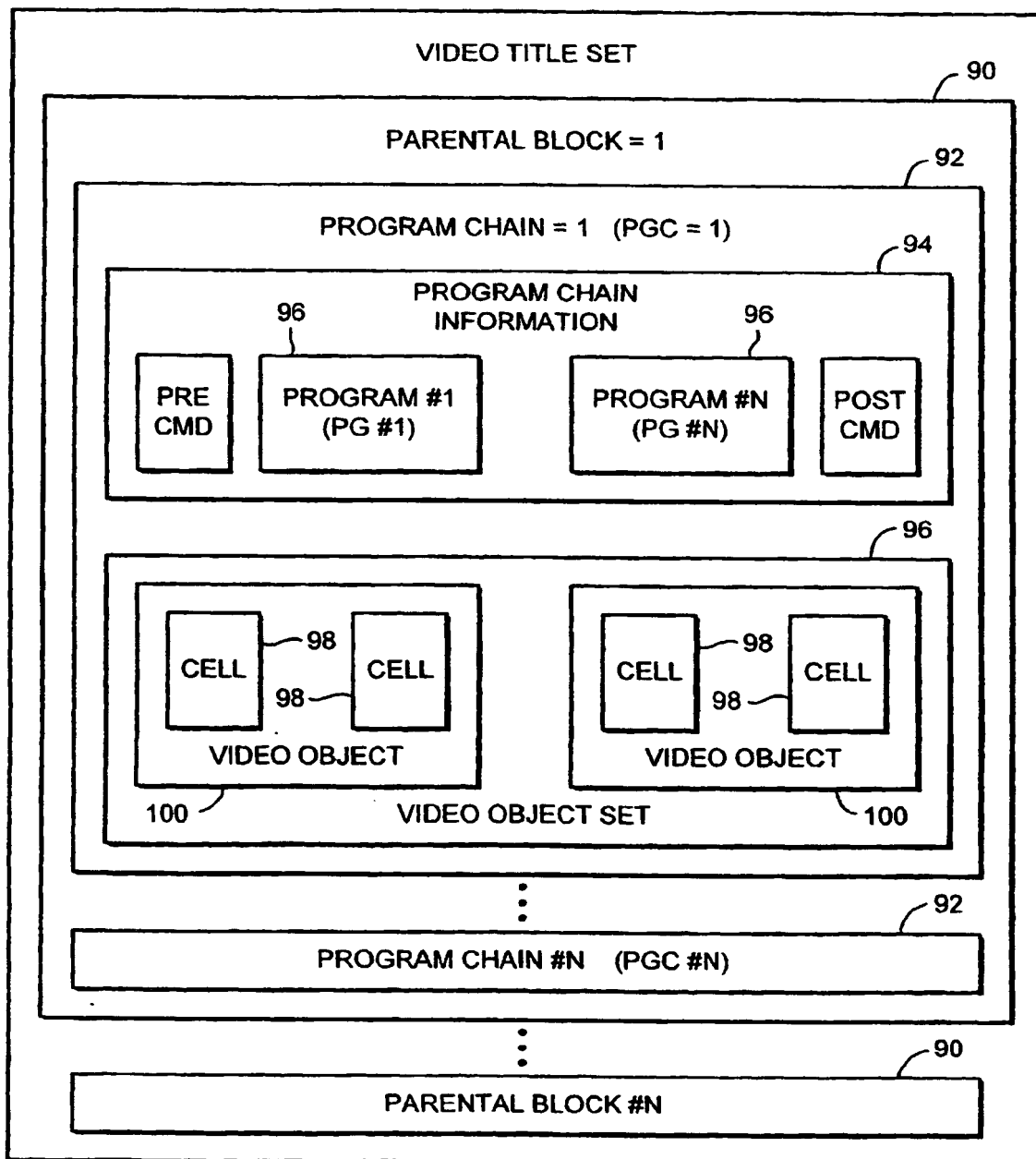
5

10

15

20
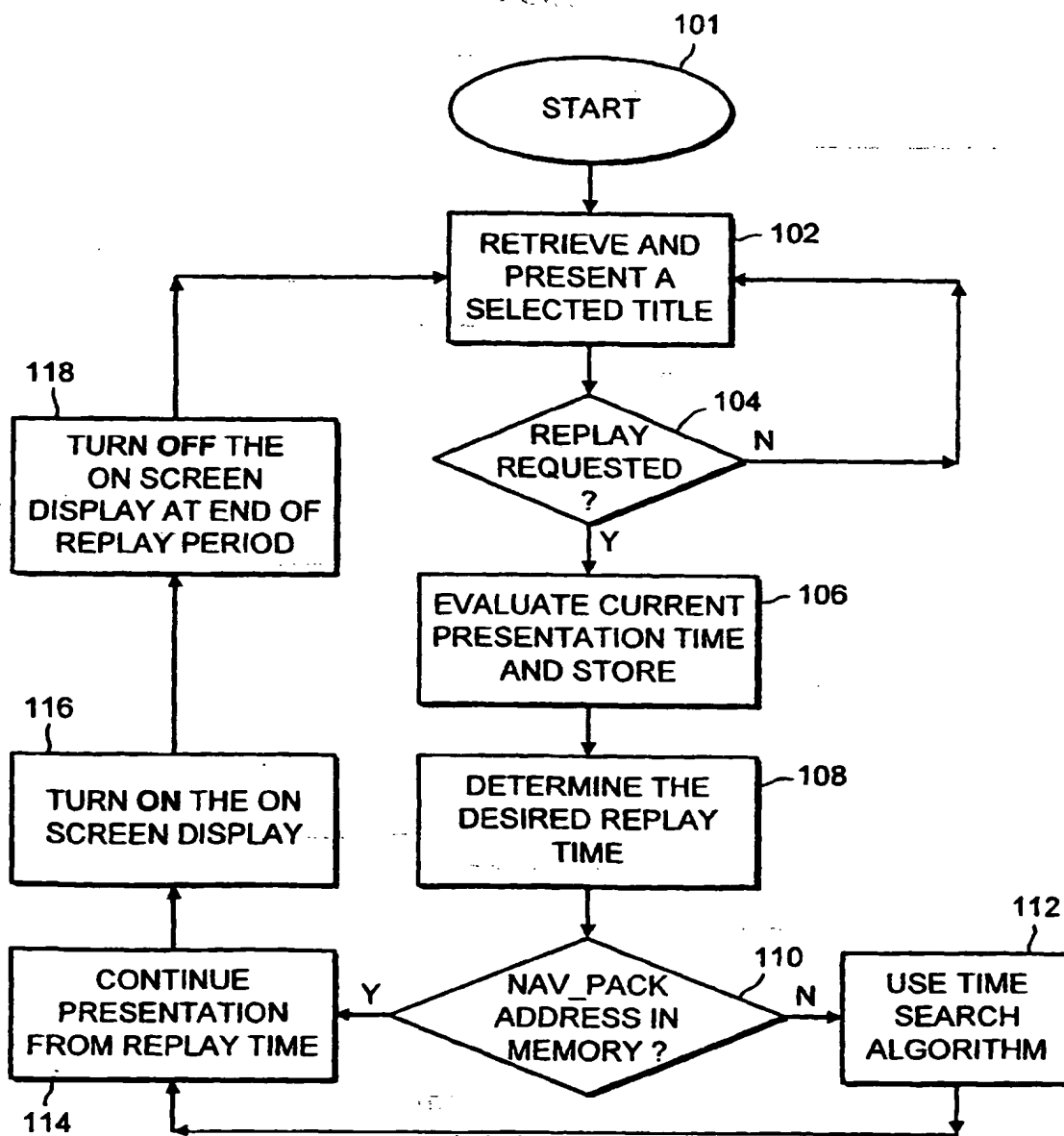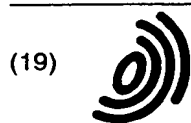
25

30

35

40

45

50

55

FIG. 1

VIDEO MANAGER	VIDEO TITLE SET 1		VIDEO TITLE SET = N

CONTROL DATA	DISC MENU	VMGI BACKUP

CONTROL DATA	TITLE MENU	TITLE CONTENT	VTSI BACKUP
	VIDEO OBJECT SET	VIDEO OBJECT SET	

VIDEO OBJECT	• • •	VIDEO OBJECT

CELL	• • •	CELL

VIDEO OBJECT UNIT	• • •	VIDEO OBJECT UNIT

NAV. PACK	PACK	• • •	PACK

PACKET	• • •	PACKET

FIG. 2

VIDEO TITLE SET

90

PARENTAL BLOCK = 1

92

PROGRAM CHAIN = 1   (PGC = 1)

94

PROGRAM CHAIN
INFORMATION

96   96

| PRE CMD | PROGRAM #1 (PG #1) | PROGRAM #N (PG #N) | POST CMD |

96

CELL — 98 — CELL
98

VIDEO OBJECT

CELL — 98 — CELL
98

VIDEO OBJECT

100   VIDEO OBJECT SET   100

92

PROGRAM CHAIN #N   (PGC #N)

90

PARENTAL BLOCK #N

FIG. 3

START — 101

RETRIEVE AND PRESENT A SELECTED TITLE — 102

REPLAY REQUESTED ? — 104 N

TURN OFF THE ON SCREEN DISPLAY AT END OF REPLAY PERIOD — 118

EVALUATE CURRENT PRESENTATION TIME AND STORE — 106

Y

TURN ON THE ON SCREEN DISPLAY — 116

DETERMINE THE DESIRED REPLAY TIME — 108

CONTINUE PRESENTATION FROM REPLAY TIME — 114

Y NAV_PACK ADDRESS IN MEMORY ? — 110 N

USE TIME SEARCH ALGORITHM — 112

FIG. 4

THIS PAGE BLANK (USPTO)

(54) **Method and apparatus for controlling presentation of digital video data**

(57) A method and an apparatus for replaying a predetermined portion of a program immediately preceding a current presentation time. An onscreen display is automatically activated while replaying the predetermined portion of the program to enable the viewer to better perceive dialogue that may have been missed or is difficult to understand due to background noise. In particular, the present invention comprises a transducer for retrieving digital video data units and control data units from a source of video data and providing digitally encoded data, a decoder coupled to the transducer for decoding a display from the digitally encoded data, and a controller for presenting a program based on a sequence of video data units in response to a first user input and replaying a predetermined portion of the program preceding a current presentation time in response to a second user input, the controller providing an onscreen display while replaying the predetermined portion of the program preceding the current presentation time. The present invention is particularly suitable for processing data encoded in accordance with the DVD specification.
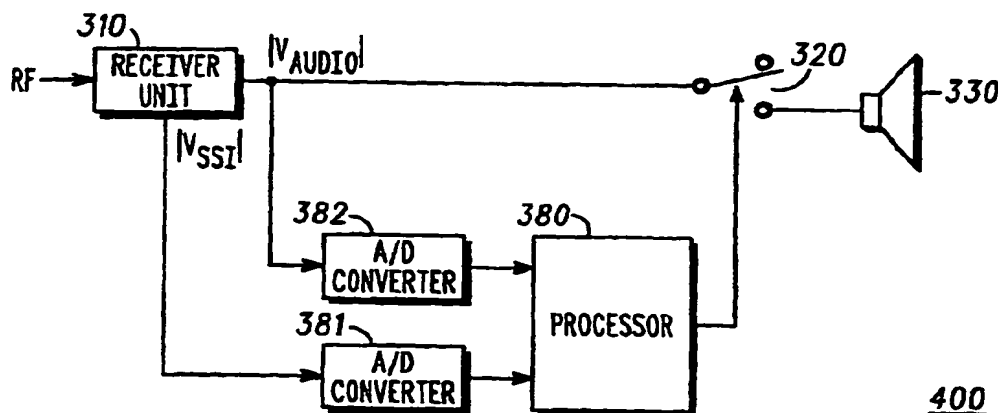
FIG. 4

DECLARATION

European Patent Office

which under Rule 45 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number

EP 00 10 7513

The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Reason:	G11B27/00 G11B27/10 G11B19/02 H04N9/804

Reason:

According to the Guidelines, the search for the claimed invention has to be based on the claims with due regard to the description (B-III, 3.1.).
There are 3 independent claims.
Independent claim 9 defines a digital video system.. Independent claim 1 defines a method for controlling presentation of data units in a system adapted to retrieve and present a sequence of digital data units. Independent claim 15 defines a method of presenting a sequence of digitally encoded video data units. The only embodiment of the description is a DVD video system "in accordance with the DVD specification" (p4 line 4), and a method of presenting video data cells "according to the DVD format" (see page 7 line 27) using NAV_PACK addresses.
The disclosure of the DVD data structure of the only embodiment of the description is limited to the logical structure of a DVD format (see figures 2 and 3 and page 6 lines 25-29 of the description), whereas it appears that the video specifications would be needed to carry out the embodiment, i.e. "Part 3 Video Recording DVD Specifications for Rewritable/Re-recordable Discs", issued by the DVD forum.
The "Part 3 Video Recording DVD Specifications for Rewritable/Re-recordable Discs" is sold under a non disclosure agreement by the fllc (see http://www.dvdfllc.co.jp) which constitutes a bar of confidentiality (see Guidelines C-IV, 5.1.). Therefore the "Part 3 Video Recording DVD Specifications for Rewritable/Re-recordable Discs"
-/--

Place of search	Date	Examiner
The Hague	12 August 2004	Valencia, E

2

European Patent Office

DECLARATION

which under Rule 45 of the European Patent Convention EP 00 10 7513 shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number

The Search Division considers that the present application, does not comply with the provisions of the EPC to such an extent that it is not possible to carry out a meaningful search into the state of the art on the basis of all claims	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Reason:	

document is not available to the public in the sense of Art 54(2) EPC at the date of filing of the application and the description is not sufficiently disclosed. As a consequence, it is not possible for the examiner to carry out a meaningful search with regard to the claimed subject-matter (Guidelines B-III, 3.7).

The applicant's attention is drawn to the fact that a search may be carried out during examination following a declaration of no search under Rule 45 EPC, should the problems which led to the declaration being issued be overcome (see EPC Guideline C-VI, 8.5).

Place of search	Date	Examiner
The Hague	12 August 2004	Valencia, E

EPO FORM 1504 (P04C37)

3